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THE FARM INDEX

ECONOMIC RESEARCH SERVICE

• U.S. DEPARTMENT OF AGRICULTURE •

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WATERSHED

PROJECTS PROD THE ECONOMY

also in this issue:
Counting the Costs for Cherries
Alaska's \$1 a Half-Gallon Dilemma
The P.L. 480 Financial Story



Economic Trends



ITEM	UNIT OR BASE PERIOD	'57 - '59 AVERAGE	1963		1964		
			YEAR	MAY	MARCH	APRIL	MAY
Prices:							
Prices received by farmers	1910-14=100	242	242	240	239	236	235
Crops	1910-14=100	223	237	245	241	243	248
Livestock and products	1910-14=100	253	245	236	237	230	224
Prices paid, interest, taxes and wage rates	1910-14=100	293	312	312	313	314	313
Family living items	1910-14=100	286	298	297	298	300	300
Production items	1910-14=100	262	273	273	272	272	270
Parity ratio		83	78	77	76	75	75
Wholesale prices, all commodities	1957-59=100	—	100.3	100.0	100.4	100.3	100.1
Commodities other than farm and food	1957-59=100	—	100.7	100.5	101.1	101.1	101.0
Farm products	1957-59=100	—	95.7	94.4	95.2	94.4	93.7
Food, processed	1957-59=100	—	101.1	101.7	100.5	100.4	99.4
Consumer price index, all items ¹	1957-59=100	—	106.7	106.2	107.7	107.8	—
Food	1957-59=100	—	105.1	104.2	105.7	105.7	—
Farm Food Market Basket:²							
Retail cost	Dollars	1,037	1,078	1,069	1,076	1,076	—
Farm value	Dollars	410	394	385	395	389	—
Farm-retail spread	Dollars	627	684	684	681	687	—
Farmers' share of retail cost	Per cent	40	37	36	37	36	—
Farm Income:							
Volume of farm marketings	1947-49=100	123	136	112	114	111	117
Cash receipts from farm marketings	Million dollars	32,247	36,248	2,342	2,397	2,330	2,410
Crops	Million dollars	13,766	16,706	691	786	700	810
Livestock and products	Million dollars	18,481	19,542	1,651	1,611	1,630	1,600
Realized gross income ³	Billion dollars	—	41.1	—	41.2	—	—
Farm production expenses ³	Billion dollars	—	28.8	—	29.2	—	—
Realized net income ³	Billion dollars	—	12.3	—	12.0	—	—
Agricultural Trade:							
Agricultural exports	Million dollars	4,105	5,585	—	531	521	—
Agricultural imports	Million dollars	3,977	4,011	—	381	361	—
Land Values:							
Average value per acre	1957-59=100	—	—	123 ⁴	131 ⁴	—	—
Total value of farm real estate	Billion dollars	—	—	143.6 ⁴	150.8 ⁴	—	—
Gross National Product ³							
Consumption ³	Billion dollars	456.7	585.1	571.8	608.0	—	—
Investment ³	Billion dollars	297.3	373.1	367.4	387.9	—	—
Government expenditures ³	Billion dollars	65.1	82.3	77.8	84.8	—	—
Net exports ³	Billion dollars	92.4	125.1	123.0	128.8	—	—
Income and Spending:⁵							
Personal income, annual rate	Billion dollars	365.2	463.0	460.1	480.9	483.6	484.8
Total retail sales	Million dollars	17,105	20,536	20,200	21,263	21,399	21,694
Retail sales of food group	Million dollars	4,159	4,929	4,890	5,152	5,097	—
Employment and Wages ⁵							
Total civilian employment	Millions	64.9	68.8	68.7	69.8	70.6	70.8
Agricultural	Millions	6.0	4.9	5.0	4.6	4.7	4.9
Rate of unemployment	Per cent	5.5	5.7	5.9	5.4	5.4	5.1
Workweek in manufacturing	Hours	39.8	40.4	40.5	40.7	40.4	40.7
Hourly earnings in manufacturing, unadjusted	Dollars	2.12	2.46	2.45	2.51	2.52	2.53
Industrial Production ⁵							
1957-59=100		—	124	124	128	130	130
Manufacturers' Shipments and Inventories^{5,6}							
Total shipments, monthly rate	Million dollars	28,736	34,774	34,836	36,222	37,061	—
Total inventories, book value end of month	Million dollars	51,158	58,807	58,507	60,283	60,478	—
Total new orders, monthly rate	Million dollars	28,374	35,036	35,438	36,547	38,081	—

¹ Beginning Jan. 1964, new ser. ² Av. ann. quantities of farm food products based on purchases per wage-earner or clerical-worker family in 1952—estimated monthly. ³ Ann. rates seasonally adj. 1st qr. ⁴ As of Mar. 1. ⁵ Seasonally adj. ⁶ Rev. ser.

Sources: U.S. Department of Agriculture (Farm Income Situation, Mar-

keting and Transportation Situation, Agricultural Prices, Foreign Agricultural Trade and Farm Real Estate Market Developments); U.S. Department of Commerce (Industry Survey, Business News Reports, Advance Retail Sales Report and Survey of Current Business); and U.S. Department of Labor (The Labor Force and Wholesale Price Index).

July is when the farmer worries his crops along, wishes more weight onto his growing livestock, cusses the weather, cuts some hay and catches fish.

July is also the month when farm economists start explaining what happened in the preceding half-year. . . . A tough job this year—the first six months were particularly eventful. Consider these principal highlights:

Winter weather was kind to the wheat crop. Anything close to a severe winter would have hurt the wheat, sowed when the soil moisture was unusually low. The crop probably will be larger than last year—mainly because of a larger acreage—but a little below average for recent years.

Domestic use of feed grains in October-March slipped 6 per cent from the heavy rate a year earlier. The drop apparently resulted from lower feeding rates per animal unit and a reduced pig crop.

The report on smoking and health, released in January, dampened enthusiasm for cigarette smoking but boosted sales of cigars and smoking tobacco in the first half. Some recovery in cigarette use has been evident in recent weeks.

Voluntary agreements to limit meat imports from three leading suppliers—Australia, New Zealand and Ireland—were made in February. Since then, there have been decreasing supplies and sharply rising prices in Europe. Beef and veal imports to the United States this year likely will drop about a fourth from the high 1963 level.

A wheat-cotton law, enacted in April, saved wheat growers' 1964-65 incomes from a drastic drop that would have occurred under previous law. It also made likely a sizable gain in domestic use of cotton in 1964-65.

A spring rise expected in beef cattle prices



failed to materialize. Domestic beef production in the first quarter was up about 11 per cent from a year earlier; output in the second quarter was also up.

International tariff discussions began in May in Geneva. The talks involve most important trading countries and seek ways to lower agricultural and industrial trade barriers reciprocally.

Fears of a prolonged drought in the western states were at least temporarily sidetracked by general rains in late May and early June. Spring weather over most other areas was average to ideal for most crops. Western range conditions were down from a year earlier and below average through June 1 this year.

Beef Over Beef Prices

A big ruckus in farm circles the past six months has been about the low beef cattle prices. . . . They have been below a year earlier every month since February 1963 (Choice steers, Chicago).

Main reasons for such concern over cattle prices: nearly a fourth of the cash receipts from all farm products marketed last year came from cattle and calves; important in every state, cattle and calves account for a third of all farm marketings in 11 states.

This concern has led to action. For example: An advisory committee has been formed to come up with ideas for handling the situation. Import-limiting agreements have been made to help cut the abundant beef supply. USDA beef purchases have been stepped up. Industry-government beef-promotion efforts are underway. And an export development program has been started by USDA and the American Meat Institute. These measures helped support prices during the first half-year—a period of heavy marketings of fed cattle.

the agricultural outlook

Price trouble in the cattle industry is not unusual; neither is price prosperity. The industry is characterized by such wide swings as the drop from nearly \$36 (annual average per cwt., Choice steers, Chicago) in 1951 to a little over \$22 in 1956, the run-up to nearly \$28 in 1959, then the drop from over \$27 in 1962 to less than \$22 for the past six months.

These price swings have occurred in a period in which beef consumption per person has gone up remarkably—from 63 pounds in 1950 to 95 pounds in 1963.

What has caused the recent price trouble? Mainly, cattlemen have been producing more meat than will move at prices they consider favorable.

Back in 1958, cattle numbers were at a low ebb following several years of depressed prices, high slaughter rates and herd disposals. Also, prices that year were up nearly \$4 from the previous year.

Since then, numbers have gone up sharply, from 59 million beef cattle and calves on January 1, 1958, to almost 79 million the start of this year. Numbers have set new record highs each year since 1958.

Also increasing dramatically has been the number of cattle put in feedlots before slaughter. The number rose from 6 million in major feeding states in 1958 to nearly 9 million as of last January 1—twice as many as in 1950.

In addition, average slaughter weights have gone up. In 1963, a typical Choice steer for slaughter in Chicago weighed 25 pounds above the average for those in 1958-62.

Also contributing to the increased beef supply has been a generally rising level—until this year—in combined imports of beef, veal, cattle and calves. In 1954-57, these imports (carcass weight equivalent) averaged less than 3 per cent of domestic beef and veal production. In 1958-61 they were nearly 8 per cent; they were 10.5 per cent in 1962 and were 10.7 per cent in 1963.

However, the average yearly domestic build-up in production since 1958 has been well over four times the rise in imports. And most of the domestic bulge has been in steer and heifer beef; most imports have been of lower grade beef.

Domestic beef production the first half of 1964 continued to increase. Cattle numbers kept rising. Numbers of heavyweight cattle in feedlots were above a year earlier. And slaughter weights were heavy, although they have slipped the past two months. Imports also declined.

Turkey Turnout Mixed Blessing

Just about everything jibed for turkey production being up only a little from last year: Breeder hen numbers the first of the year were down a bit from a year earlier. . . . Monthly numbers of eggs reported in incubators were staying about in line with year-earlier months. But something unexpected happened in turkey production.

Hatcherymen got three to four more poults from each 100 eggs incubated the first half than a year earlier. Normally, hatchability gains from year to year are quite small.

Reasons for this year's big rise are hard to pinpoint because the rate of hatch depends on the combined effect of many factors; any or all may be decisive.

Good weather was probably a factor. And long-range efforts to improve the hatch rate may have been favorably combined. For example, the selection of more fertile breeding strains, improved flock and egg management and better incubators may have stepped up the rate of hatch.

Whatever the reasons, higher hatchability means the 1964 turkey crop will likely be up at least 5 per cent from last year. Producer prices in September-December, the main marketing season, probably will be below the average of 22.6 cents a pound recorded during last year's marketing season.

Yield in pounds per acre	COSTS OF GROWING AND HARVESTING TART CHERRIES			
	Michigan	New York	Pennsylvania	Wisconsin
	Cents per pound			
2,000	14.9	14.6	13.8	14.0
4,000	8.9	9.0	8.4	8.5
6,000	6.9	7.2	6.5	6.7
8,000	5.9	6.3	5.6	5.8
10,000	5.3	5.7	5.1	5.2
12,000	4.9	5.3	4.7	4.9



COUNTING THE COSTS FOR CHERRIES

Michigan leads the Lake States and the Lake States lead all others in output of tart cherries, a small fruit that is worth some \$20 million to producers

Little red cherries add up to a big crop in the Great Lakes States. The area accounts for nine-tenths or more of the U.S. crop in most years. The rest comes from Washington, Oregon and several other western states. And, tart cherries are worth \$20 million to the producers.

Since the Lake States are the center of tart cherry output, the characteristics and problems of producers in this area have been the subject of a recent study. The study includes information from previous research on production costs for cherry growers and data on cherry output from the 1959 Census of Agriculture.

Michigan is the No. 1 state for tart cherries. In many recent years, Michigan producers have accounted for over 60 per cent of the crop. New York follows with about 15 per cent and Pennsylvania and Wisconsin each contribute roughly 8 per cent. Ohio accounts for only 1 per cent of national output.

The average number of bearing cherry trees per farm reporting in the 1959 census was the largest in Michigan, with 593. Wisconsin

followed with an average of 535 trees per farm. New York had around 300 trees per orchard and Pennsylvania averaged only 86. In all four states, the size group of farms reporting the most cherry trees (from 19 to 24 per cent of the total for each state) had orchards with 500 to 1,000 trees. Farms with orchards of 5,000 trees or more made up from 2 to 22 per cent of all farms reporting.

Total production and harvesting costs varied from state to state but the costs per pound didn't necessarily follow in the same order because of the difference in yields. In Michigan, growers reported spending \$213 per acre for production and \$271 per acre for harvesting during 1961. With an average yield of 4.2 tons per acre, these costs came to roughly 2.5 cents and 3.2 cents per pound, respectively.

Costs for producing tart cherries in New York came to \$183 an acre for growing and \$253 for harvesting. With a yield of 3.3 tons, the expense per pound was 2.8 cents and 3.8 cents. For Wisconsin, only the total growing cost, about \$193 per acre, was

available. In Pennsylvania, tart cherries cost \$201 per acre to produce and \$172 per acre to harvest—3.8 and 3.2 cents per pound with an average yield per acre around 2.7 tons.

Researchers found the cost per pound for producing tart cherries by states was much closer when yields were set at the same levels. For example, costs ranged from 8.4 cents per pound in Pennsylvania to 9 cents in New York when yields averaged 4,000 pounds per acre. With a yield of 10,000 pounds, costs were between 5 cents per pound in Pennsylvania and 5.7 cents in New York.

When the growing and harvesting costs were fixed at \$200 per acre and 3.5 cents per pound, some indication of the yields and prices necessary for the farmer to break even on his cherry enterprise was obtained. When an orchard produces 10,000 pounds per acre, the grower must get at least 5.5 cents to cover his costs. At 8,000 pounds per acre, the price would have to be 6 cents per pound, at 5,000 pounds, 7.5 cents; at 4,000 pounds, 8.5 cents.

Production practices normally

used by Great Lakes tart cherry producers include pruning, fertilizing and spraying their orchards. The extent of use of each practice depends on the area. In New York mature cherry trees are trimmed to some extent every year. In Pennsylvania, growers prefer to alternate years when pruning is heavy with years when a light job is done. Either way, pruning is an important and costly practice.

Fertilization varies even more by production area. The estimated expense reported by farmers for manure and fertilizer used on their orchards ranged from \$22 per acre in Michigan to \$9 per acre in Pennsylvania.

Cherry orchards are sprayed for control of weeds and insects as well as disease. The range in cost was wide—from \$18 per acre in Wisconsin to \$38 per acre in Pennsylvania.

As might be expected, the most difficult problem in harvesting cherries was obtaining pickers. Normally, producers depend on an influx of such labor from a considerable distance. Since most of the crop is harvested within 15 days (and timeliness is all important), the labor supply often is keyed to the amount of other work available in the area before and after the cherry harvest. The production of additional fruit and vegetable crops helps to supply work for pickers over a longer period and makes it easier to get them to come into an area. However, the trend to mechanization threatens to make the process of finding labor more difficult.

So far, mechanical harvesting of tart cherries has not been used extensively. Estimates of the costs of mechanical harvesting indicate that farms with as few as seven acres of orchard could realize a profit on their crop if they obtain average yields of 6 tons per acre and up. Farmers with 14 acres of trees could afford mechanical harvesting with yields of at least 4 tons per acre. (1)

Owning Is Nice, but Renting Stretches Dollars Available for Land Investment

In the present drive toward larger and more efficient farms, who's buying land, who's renting, and who's got land to spare?

One profile of market participants comes from Michigan. In the Thumb and South Central areas, 265 farmers were polled in 1963. A related survey made in 1959 provides a basis for measuring changes in land tenure.

A fourth of the farmland in the two areas changed management through a sale or change in tenant during the four years.

Nearly half the farmers bought or rented some land. Of those acquiring land, 16 per cent both bought and rented, while 58 per cent rented only and 26 per cent bought only. Only one out of five farmers who were full owners added land. In contrast, about two-thirds of the part owners and full tenants expanded during this period. Operators both buying and renting added more land than those who only bought.

Limited capital stretches over more acres when used for annual rentals and operating expenses. Though farmers value full ownership highly, it may not allow for as much expansion and may restrict earning capacity compared with a combination of rental and purchase.

What sort of farmer acquired land? Half or more of the large dairy, beef and hog farms were expanded in size during the four years. Only one out of three farmers with small livestock enterprises added land. Seventy per cent of the cash-crop farms maintained their same acreage.

Of all the land bought or rented 55 per cent went to expand large livestock farms, 34 per cent for small livestock, and only 11 per cent for cash-crop.

The farmers expanding their operations were generally younger and better educated. They were

more aware of the need to increase the scale of their operations and become more efficient.

Part-time farming is increasing and it's now considered a permanent occupation in industrial Michigan, rather than a stepping-stone into or out of agriculture. Nearly half the part-time farmers but only a third of the full-time farmers acquired land. Farm plus off-farm earnings provide a substantial base for expansion. From a small acreage to start with, modern equipment allows such farmers to handle increasingly large farms. These factors make the part-time farmer a more and more important component of the land market.

What sort of farmer had land to spare?

One-tenth of the farmers reduced their acreage by supplying land to other operators, mostly through renting. Cash-crop farmers supplied slightly more than half the land for expansion. Ten per cent came from dairy farmers and nearly 40 per cent from general livestock farms.

Retired persons supplied almost half the land purchased and a third of the land rented. One of every five tracts purchased and about two-fifths of tracts rented came from landowners who had full-time off-farm jobs. Widows rented out a larger share of their land than they offered for sale.

Of those selling land, 75 per cent released all of their farm holdings. Of those renting land out, about 60 per cent rented their entire farm.

Sellers of land appear to be moving out of active farming more than landowners renting out land. Two of every five farmers renting out land did so to reduce the size of their farm, but stayed in agriculture.

Of course, much of the land supply for expansion came from farmers who left agriculture, and thus were not polled. And some came from non-farmer landowners. (2)

More Credit Used in Farmland Market As Lenders Vie for Profitable Loans

Cash has lost ground to credit lately in the farmland market. Seventy-three per cent of farmland purchases were credit-financed in the year ended March 1, 1963. This was six percentage points higher than the steady 67 per cent of 1955 to 1961. The major jump came in the year ended March 1, 1962, as the proportion of credit-financed land transfers moved up to 71 per cent. The next year clipped two more points from the share once financed by cash.

This abrupt upward turn came about the same time that commercial banks were allowed to raise their interest rates for time deposits. As rates went up, savings accounts swelled. Over the two-year period 1962-63, savings deposits rose nearly 40 per cent in country banks in 20 leading farm states.

Banks and other financial institutions were thus under pressure to make profitable loans. Major lenders became more competitive. Lending standards were liberalized.

In 1963, downpayments on farmland averaged below 40 per cent for the first time since the early 1940s.

This was partly due to the liberalization of bank credit, with commercial banks putting up 67 per cent of the price in 1963, compared to 58 per cent in 1962. But increased use of the land contract was also important. The trend to the installment land contract, as opposed to conventional mortgages, is probably the most significant change in the farmland market of the last 20 years. These contracts are similar to purchase contracts for cars.

Of all credit sales in the year ended March 1, 1963, about 30 per cent involved land contracts. This was a 5 per cent jump over the previous year. (3)

American agriculture is a big business made up of many small ones.

In the aggregate, farmers and ranchers use 1.3 billion acres of land, 9 billion man-hours of labor and over \$200 billion in assets. Together, farmers own 5 million tractors, 3 million trucks, 4 million automobiles and other farm equipment worth nearly \$20 billion.

At the same time, the family-size farm continues to be the backbone of agriculture. And these units are growing and marketing more products. Out of a total of 3.5 million farms, 800,000 produce over \$10,000 worth of food and fiber annually and 100,000 market more than \$40,000 worth. Most are operated by a single family.

The American farmer's recipe for increased crop production includes extra fertilizer, improved crop varieties and a generous dash of power and machinery. Combine these ingredients with better management by farm operators and the result is a 44 per cent gain in total output of crops since 1940. Further, the additional output was produced on 9 per cent fewer acres of cropland and with less than half as much labor.

Fifty-two per cent more wheat per acre, 76 per cent more corn, 95 per cent more cotton. These are increases in yields from 1950 to 1963. A good part of the gain was due to the use of more fertilizer.

Reminisce about Grandfather's team of matched Clydesdales if you like, but the horses on farms today are strictly in terms of mechanical power. And, that power is so valuable a production tool that farmers have added to it at a terrific pace. The statistics show that last year they used 38 per cent more tractors, nearly double the number of cornpickers, three and three-fourths the number of pickup balers and four times the number of forage harvesters in operation in 1950. (4)

Higher Yields With Fertilizer Offset Rising High Plains Water Costs

Irrigating crops profitably on many farms in the Texas High Plains means making effective use of water pumped from low capacity wells.

A 1962 survey of irrigation wells in the area showed that many older pumps and most new well installations were being equipped with two-inch submersible pumps.

But even with the newer pumps, total water costs would probably rise \$1 to \$3 above 1962 levels per allotted acre of cotton irrigated, according to estimates of economists in the Texas Agricultural Experiment Station and the Economic Research Service.

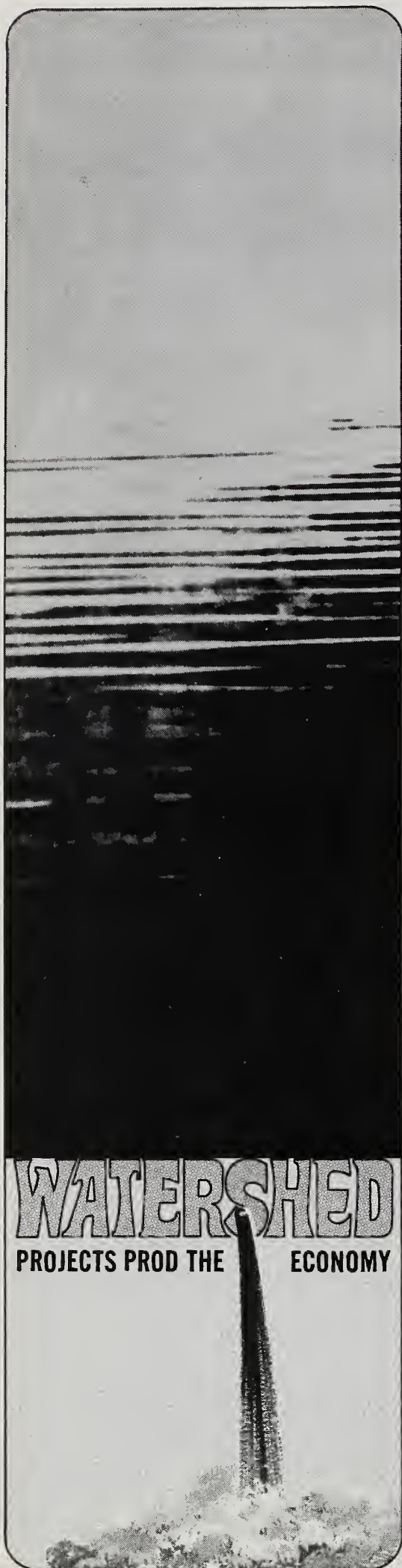
In the Texas High Plains water costs accelerate as the depth of wells increases. For wells deeper than 130 feet, about half of the prospective cost increase would be due to higher operating expenses for pumps. Most of the cost increase for wells under 90 feet deep would result from greater expenditures on irrigation labor.

Water costs might even become prohibitive, according to the economists, if the depth of low yield wells exceeds 130 feet.

Therefore, as costs of operating low capacity wells increase, the use of fertilizer to up yields is likely to become more important to farmers.

In 1962, yields of irrigated cotton planted in skip rows, two in and one blank, exceeded similarly planted dryland cotton yields by 338 pounds of lint per allotted acre when the irrigated cotton was fertilized; by 215 pounds of lint when no fertilizer was used.

Yields of cotton grown with fertilizer rose about 34 pounds of lint per acre-inch of water applied. Yields of cotton grown without fertilizer were increased only 21 pounds by irrigation. (5)



Farm Families Along Wisconsin River Look Forward to Watershed Project

"We'll finally have flood control. Better pasture, too."

This is how about half the 54 farm families who own bottomland along the Wisconsin River in the southwestern part of the state have reacted to the Twin Parks watershed project. The other half aren't so sure about the benefits they'll get.

A total of 340 families farm in the Twin Parks watershed.

Their farms averaged 207 acres. Dairying is the chief source of farm income with an average of 25 cows per farm. Hogs are a strong secondary enterprise and there are beef and poultry, too.

As far back as people can recall, the river here has flooded the bottomland every couple of years—damaging pasture, rotting feed crops. Dairymen have reacted by planting grain on the steep slopes above the river valley, a practice that makes for less efficient farming but at least produces flood-proof harvests.

Under the Twin Parks watershed project, launched in 1961, a series of dams and an artificial lake are being built to control the wayward river.

The project will cost somewhat over \$1 million. According to the work plan, costs on an annual basis will run about \$31,000. But annual savings will be about \$41,000. The benefit/cost ratio is 1.32 to 1.00, making the project an economically sound undertaking.

The \$41,000 annual savings will accrue this way: \$26,000 saved in flood damage; \$4,000 in such indirect ways as reduction of hazards and inconveniences due to flood-damaged roads and bridges; \$11,000 in increased returns from 437 bottomland acres that farmers are expected to convert from pasture to cropland. (Hillside fields will be returned to grass as a conservation measure.)

Naturally, farms closest to the dam network will get the most benefit from flood control. For example, nine farms in a relatively close *reach* expect to convert a total of 76 acres; eight farms in a more distant *reach*, only 18 acres. A *reach*, according to civil engineers, is a part of the flood plain that can expect a given level of protection.

While 20 of the 54 families don't anticipate much personal benefit from the flood control system, most do feel it will help the community.

Chances are, these families will see more personal benefit once the flood control system is operating.

These plans, attitudes and aspirations of people in the Twin Parks watershed are shown in a new study by the University of Wisconsin. Undertaken in cooperation with ERS, the study was designed primarily to catalogue land use before flood control. (6)

USDA and Other Government Agencies Plan Ohio River Basin Development

The ten states that comprise the Ohio River Basin account for 14 per cent of the nation's farm operators and 16 per cent of the full owner-operators.

In 1959 they produced 27 per cent of the nation's lespedeza, 25 per cent of the Burley tobacco, 20 per cent of the timothy-clover hay and 15 per cent of the corn for grain.

These crops represent an important part of U.S. agriculture. Besides the crops, the basin produced 16 per cent of total U.S. sales of hogs and pigs and 9 per cent of whole milk sales.

Under authority of the Congress, army engineers are preparing a comprehensive plan in cooperation with federal and state agencies, for the development of the water and related land resources in the Ohio River Basin. The plan includes flood control, drainage, navigation, water sup-

ply and control, and recreation.

To provide broader coverage of the basin, USDA and other federal departments will assist the engineers. The Ohio River, the main drainage channel of the basin, rises in western Pennsylvania, flows southwest and empties into the Mississippi at Cairo, Illinois.

The Ohio River divides the basin into two areas nearly equal in size but considerably different in characteristics. For example, the portion north of the river is the flat, highly productive crop land in Ohio, Indiana and Illinois. This area produces corn, small grain and livestock. The only mountainous part of this area is the plateau of northwest Pennsylvania.

The basin south of the river is mostly mountains and plateaus of the Appalachian, Allegheny and Cumberland Ranges. This section extends from southwest Pennsylvania through most of West Virginia and Kentucky and into north central Tennessee.

The southern portion is important for the production of timber, hay and pasture, livestock and certain specialty crops such as tobacco.

Segments of Maryland, Virginia and North Carolina are also part of the Ohio River Basin. (7)

Watershed Helps Entire Community: Farmers, Truckers, Doctors, Lawyers

"A new flood control system upstream? Sure, it'll help farmers. But I sell lumber. What'll it do for my business?"

This lumber dealer could be living in any of the 11 major river basins marked for flood control and soil conservation by the federal government. And he could just as well be a car dealer, a cafe owner or a wage earner. They'd all likely be surprised at the answer.

True, watershed projects add directly to farm income. But indirectly, through increased pur-

chases by farm families, they add to the income of the entire community.

Take Roger Mills County, Oklahoma, population about 5,000. Most of the county lies in the Washita River Basin where over half the planned 915 flood-retarding structures have already been completed or contracted for.

For every \$100,000 in gross income, total net income to farmers is \$26,867. Of the \$100,000, some \$54,362 will be spent by farmers for goods and services within the county. The multiplier effect of the \$54,362 adds \$77,845 in gross receipts and \$16,457 in net income to local nonfarm residents.

Employees in the county of local and other government agencies will add as a group \$3,744 in net income for every \$54,362 spent locally by farmers. Wage-earners working for private business will add a total of \$3,491.

Next, at \$2,883, is the sector that includes owners and operators of automobile dealerships, farm equipment firms, service stations, garages and the like.

Then comes a group that includes grain elevator operators, feed and produce stores, truckers and people in similar occupations. This group receives \$2,244 more in net income for every \$54,362 spent locally by farmers.

Lumber yards, hardware stores, utilities and construction companies collectively add \$1,267, followed closely, at \$1,142, by such professional services as doctors and lawyers.

Grocery store operators, restaurant owners and others selling food or drink pick up as a group \$732. Department, drug and variety stores, plus jewelers, increase net income by \$483.

Churches, civic groups and other social services receive \$254 of every \$54,362 spent locally by farmers.

And \$217 is taken home by the group made up of beauty and barber shops, motels, cleaners and movie theaters. (8)

**\$3,491
WAGE
EARNERS
IN PRIVATE
INDUSTRY**



**\$2,883
SERVICE
STATIONS**



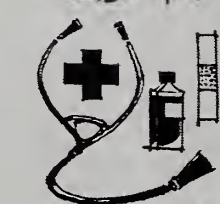
**\$2,244
GRAIN
ELEVATORS**



**\$1,267
LUMBER
YARDS**



**\$1,142
DOCTORS**



**\$483
DEPARTMENT
STORES**



**\$217
BARBER
SHOPS**

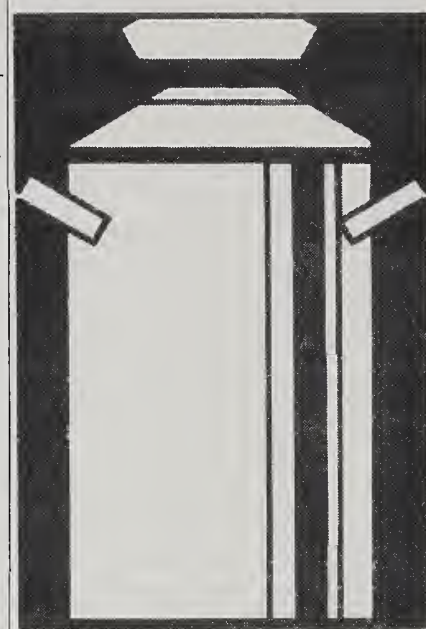


**FARMERS SPEND
EXTRA INCOME
IN COMMUNITY**

Net income increase by typical occupational group for each \$54,362 spent locally by farmers. Except for wage earners, groups represent owners or operators. Not all groups or occupations within groups are shown.

MILK IN SEWARD'S ICEBOX: COSTLY HOMEMADE, COSTLY IMPORTED

Fluid milk in stores	April 1963 prices, half-gallons in—			
	Anchorage	Fairbanks	Nome	Kodiak
	Cents			
Alaska-produced milk:				
Price to consumers	87.9	98.1	137.0	
Retail markup	9.9	14.1	17.0	
Price to retailers	78.0	84.0	120.0	
Transportation & handling	—	—	42.0	
Buying price	78.0	84.0	78.0	
Outside milk:				
Price to consumers	88.0	100.0		84.4
Retail markup	2.8	14.6		14.1
Price to retailers	85.2	85.4		70.3
Transportation & handling	39.7	39.7		22.4
Buying price	45.5	45.7		47.9



ALASKA'S \$1 A HALF-GALLON DILEMMA

If Alaska had a few less mountain ranges milk wouldn't cost so much.

With more tillable land farmers could grow more grain, feed more dairy cattle, produce more milk—and lower the price to consumers.

Retail prices of fresh fluid milk run up to \$1.00 a half-gallon in Fairbanks and Valdez, \$1.37 in Nome. This is over twice the average cost in most American cities.

As a result, many Alaskans buy cheaper milk products like concentrated, recombined and non-fat dry milk. In fact, despite population increases, fresh fluid milk sales in Anchorage and Fairbanks, for example, have actually declined in the last few years.

The trend is shown in a new survey made by the Alaska Agricultural Experiment Station in cooperation with ERS.

Most of the dairy industry is located in the relatively temperate south central part of the state, with Anchorage as the processing and distributing center. Milk production has increased

faster than population in the last 10 years, but local dairymen still don't produce enough to meet demand. Large quantities of milk and dairy products have to be shipped in from Seattle.

Local producers cite production costs as the chief factor limiting more rapid expansion. Feed, fertilizer and other inputs have to be imported from "the lower 48" states. Labor costs are high, too, since other industries vie for the limited manpower.

Yet in Anchorage, where no transportation charge for locally produced milk has to be added, the retail price of fluid milk in half-gallon containers in April 1963 was 87.9 cents. Of this the retail grocer paid 78 cents. He took a markup of 9.9 cents.

What actually happens is that retailers price local milk at about what they have to charge for milk shipped in from Seattle.

The Seattle buying price of fresh fluid milk was 45.5 cents a half-gallon in April 1963. Transportation to Anchorage added 39.7 cents, so retail grocers paid 85.2 cents. Taking a markup of

only 2.8 cents, grocers charged consumers 88 cents a half-gallon.

However, a survey of 11 markets throughout Alaska showed a wide variation in retail markups. Fairbanks grocers paid the same price for milk in Seattle and the same transportation charges in April 1963 as those in Anchorage. Yet Fairbanks retailers took a markup of 14.6 cents and charged consumers \$1 for the same half-gallon that sold in Anchorage for 88 cents.

As for such remote places as Nome, 200 miles from Siberia, only Alaska-produced milk is available. Of the \$1.37 retail price per half-gallon, the processor gets 78 cents; transportation accounts for 42 cents; and the retail markup is 17 cents.

Part of the problem in smaller towns is that there are too few people to support more than one or two retail outlets for milk and dairy products—there's no competitive pricing. Alaska still averages only 38 people per 100 square miles, and nearly half live in the Anchorage area.

A big boost to local production

came in 1960 when U.S. military forces in Alaska switched from recombined milk to fresh fluid milk for troop use.

The recombined milk had been shipped from "the lower 48" in the form of nonfat dry milk and plastic cream and recombined in Alaska. With the military now buying only Alaska-produced fresh milk, some producers see this as a way to expand production. (9)

Trucks Get More Long-Haul Produce Traffic Despite Above-Rail Rates

Shipping lettuce or oranges from the San Joaquin Valley to Portland, Oregon? For this short haul it's cheaper to ship by truck than by rail.

In fact, trucks handle almost all short-haul traffic in unprocessed fruits and vegetables, according to an ERS report on interstate movements of California-Arizona fresh produce.

If you've got a full load of fresh fruits or vegetables going to Chicago, an intermediate haul, it's cheaper by train. But part-loads are cheaper by truck because, unlike rail, they are customarily carried in consolidated shipments. Under the circumstances, trucks now haul over half the California-Arizona traffic to the mid-continent states.

If you're shipping to eastern markets—and 60 per cent of the produce from the bi-state area does move east—the situation is much the same as for intermediate hauls. For full loads it's cheaper by rail. Full load truck rates range from a few cents to three times more than rail rates. But if you have a small load you'll save money shipping east by truck.

Nevertheless the big highway cruisers, many of them refrigerated, are making inroads in the long-haul business that's regularly gone to railroads. Truckers had less than 1 per cent of the

long-haul traffic in 1951; their share by 1960 was up to about 8 per cent. For many users, the type of service offered by trucks is apparently worth the higher price paid for full load shipments from California and Arizona.

A look at all interstate hauls shows how truck traffic grew in a decade. In 1951 only 13 per cent by volume of the fresh fruits and vegetables moved overland out of California and Arizona went by truck; in 1960 trucks hauled 30 per cent.

The following advantages were cited as important factors contributing to trucks' increased popularity.

—Fruits and vegetables get to their destination in better condition because they arrive there faster. Spot checks showed trucks cut a day or two off train time to markets all over the country. This means, too, that there's less chance of a change in market price while the shipment is on the road.

—Trucks can pick up loads from several points and deliver them to different locations, which is not practical by rail.

—Claims for loss or damage occurring en route can usually be settled with truckers on the spot.

Among trucks' disadvantages the report mentioned the following items:

—Truck operators are not as consistent as railroads in meeting prearranged loading schedules and insist on prompt loading upon arrival. This disrupts shipping routine, creates labor problems and can lead to irregular hours.

—Trucks hauling unmanufactured farm products interstate are exempt from ICC rate regulation. Each trucker can ask what he thinks the traffic will bear. This creates a bargaining situation between truckers and truck users which is not encountered in hauling by rail.

—The financial stability of some truckers is uncertain. (10)

Freeze-Dried Foods Will Land on Moon But Industry Jobs Won't Even Orbit

MENU

Second Night in Orbit

Shrimp Cocktail

Beef Pot Roast

Green Beans in Cream Sauce

Apricot Pudding

A three-course meal in the weightless world of space where even the crumbs will float?

That's right. It's not Jules Verne fiction either. It's the Gemini moon shot program.

Actually, this is just a sample menu compiled from the list of foods to be used on Gemini flights. For other meals the astronauts could have chicken with gravy or spaghetti with meat sauce. There's sausage for breakfast, a bacon and egg omelet for lunch—and peanut butter sandwiches for that bedtime snack.

Every one of these food items—in fact, almost all Gemini foods—are *freeze-dried*.

Freeze-drying is a new process that removes up to 98 per cent of the water in foods. Space program foods have been precooked, frozen, then dried, leaving them nearly natural in form, shape and size.

All the airborne astronaut has to do is open the pouch-type package of pot roast, for example, add water, knead for a minute or two and the roast is ready to eat.

Freeze-dried foods have been chosen for the Gemini flights, not because they're almost weightless but because they're of high quality and convenient. Fresh foods, of course, would spoil. Frozen foods would require bulky and heavy refrigeration equipment. Canned foods have other disadvantages.

As for those crumbs floating around in the capsule, the freeze-dry people have taken care of them, too. Gelatin has been added to bite-size sandwiches, toast and

other bread items. There aren't any crumbs to float.

Aside from feeding astronauts in orbit, admittedly a limited market, ERS economists see a growing demand for freeze-dried foods in more down-to-earth uses. Our armed forces not only use them for emergency field rations, but in the mess hall too. Campers buy them because they're palatable, and easy to pack and serve. And food processors are adding freeze-dried ingredients to dry soups, omelets, stews and cereals.

ERS estimates that the freeze-dry industry will expand, from 11 commercial plants in 1963 to 42 by 1970. Plants will get larger, too. Last year all food was freeze-dried in small plants with less than 4,000 square feet of shelf area; by 1970 most freeze-dried food will be processed in large plants. This will lower processing costs which in turn will lower retail prices.

Investment for new equipment likely will increase from about \$1.6 million a year today to \$9 million in 1970.

The freeze-dry industry probably won't have much of an impact on the labor market. The highly mechanized industry will employ about 600 full-time production workers by 1970, compared with 100 today. Including jobs that might be created in related industries—freezing, packaging and so on—the number climbs only to 7,000 workers. (11)

New Plant Models, Work Schedules Show How to Trim Hide Curing Costs

A new layout for the hide curing plant, a better work schedule . . . together they might knock as much as 37 cents off the industry's average cost of curing one hide.

The savings appear in recently designed models of hide curing plants. One of the plants, using a pack salt operation, handles 500 hides a day. The other, an agi-

Gin Sampling

Mechanical devices for sampling cotton while it's being ginned have been on the market since 1955. But only about 3 per cent of gins in the Cotton Belt use them.

A new ERS study shows mechanical sampling is just as good as cut sampling in determining the initial quality of cotton — grade, staple length, color and so on. But it's not quite as good when cotton has been stored two years.

Traditionally, cut samples come from cotton already ginned and baled. But this method takes cotton only from the outer layer on two sides of the bale and may not represent the entire content. (12)

tated brine setup, processes 1,000 hides a day. Both plants are designed for a one-floor, ground level building to cut down on construction costs. Costs for both models are based on 1961-63 prices.

For the pack salt system, key features for cost cutting are:

—The ground level plant makes it possible to unload hides at the pack area. It eliminates most of the seven hours of labor needed daily for taking hides onto a loading platform, loading onto hand-trucks and carting to a hide cellar. Doing away with the need to run the hides up and down elevators cuts another four hours from labor requirements.

—A 30-foot wide center aisle makes it possible to move hides, salt or equipment through the plant without bringing other work to a halt.

—Shipping loads out when the hides are taken up eliminates most of the need for storage space, though a few odd grades would still have to be held until sale lots are made up.

Such a procedure reduces the amount of space needed by nearly a third, thus offering a sizeable cut in the annual ownership costs for the firm. It also reduces the

investment in inventory. This modified procedure also curtails the amount of labor needed by around 14 hours in a plant handling 500 hides daily.

—The four-to-six-man trimming crew employed by many firms can be cut in half if hides are trimmed only once instead of twice. And firms that keep three men on this job may be able to reduce their work requirements by another third.

—Weighing hides only once, at the time of take-up, also helps to hold down the amount of labor needed.

With these and other improvements, a hide house can reduce total labor requirements by as much as 20 per cent.

The model for the agitated brine system also points to appreciable savings. Some of the principal changes are:

—Placing hides directly into the raceways eliminates about eight hours of work a day by streamlining the unloading and receiving process.

—Weighing or trimming once instead of twice slices 24 man-hours of work out of the day's requirements.

—Fleshing after curing eliminates the need for a hide wringer along with the 16 hours a day used in operating the equipment.

—By moving hides directly out to waiting rail cars or trucks, another eight hours of labor is saved. And, as is true of the pack salt operation, shipping directly from the processing line does away with the need for storage space that runs up the cost of ownership of the plant, and holds inventory costs to the bare minimum.

The combined effect of these changes in the usual systems for an agitated brine cure is a saving of about 57 man-hours of work a day. And when, as is possible, the fleshing machine is operated at 100 hides per hour instead of the usual 80, total labor requirements are cut by about a third. (13)

THE P. L. 480 FINANCIAL STORY

*U.S. farm sales under Titles I and IV open marketing channels
and pave the way for prosperity in developing nations*

Public Law 480 often helps turn a developing country into a good cash market for American farm products.

Foreign importers in these countries find P.L. 480 their most convenient way to buy our agricultural surpluses. And once marketing channels are opened, they usually stay open as the country gains in prosperity.

Public Law 480, enacted in 1954, provides for the disposal of surplus U.S. farm products abroad either as grants, gifts, barter or through concessional sales. The first section, Title I, allows foreign countries to purchase our surplus farm products

and pay for them in local currencies when they can't buy all the farm products they need through normal commercial transactions.

The last section of the law, Title IV, provides for repayment in dollars on a long-term basis.

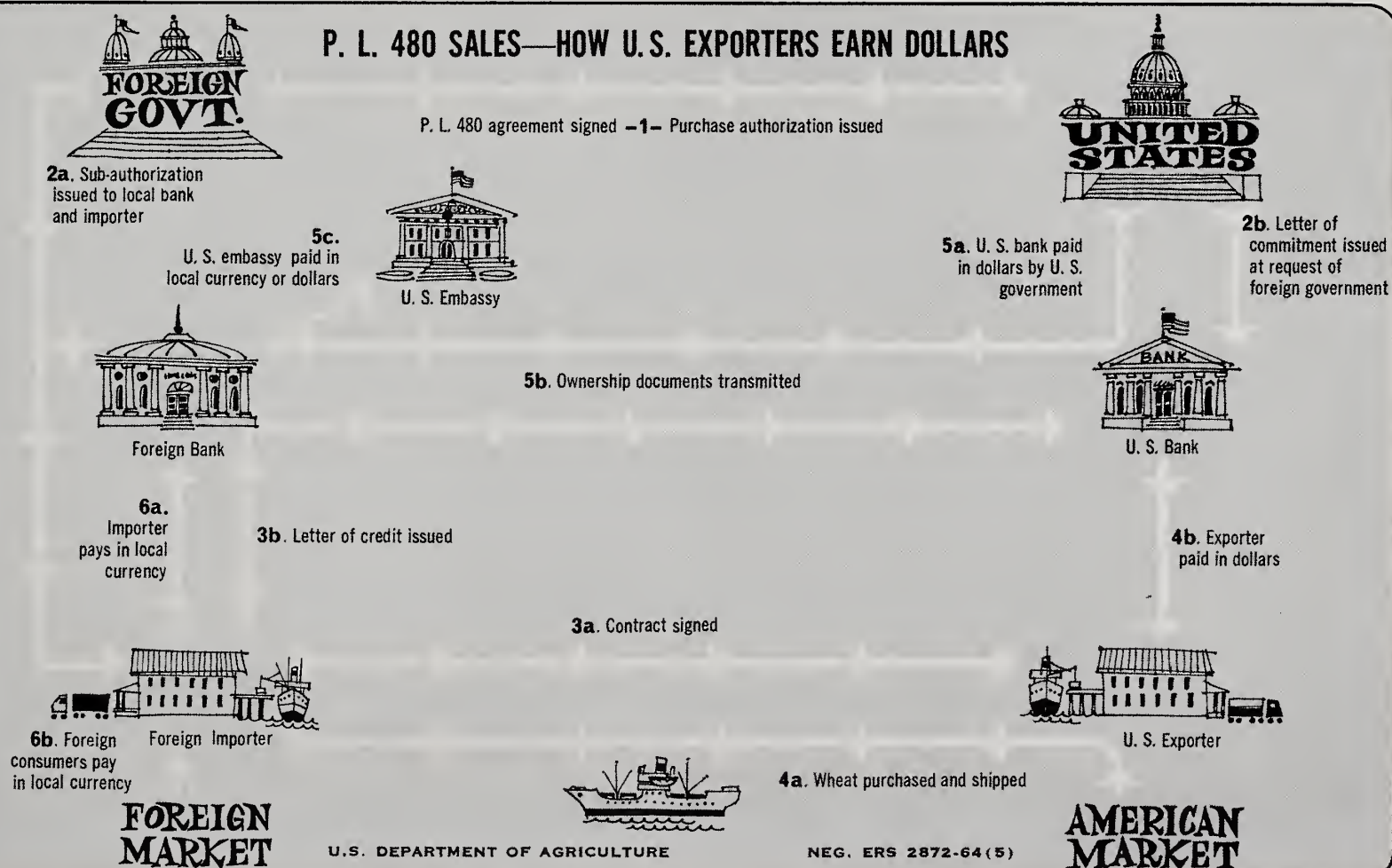
P.L. 480 shipments paid for in local currencies have accounted for 18 per cent of total U.S. agricultural exports since 1955, exports worth roughly \$7.2 billion. Sales for long-term dollar credits now total \$176 million.

In slow motion, here's what happens when an American exporter sells wheat to a merchant in Taiwan under P.L. 480.

Step 1: The Nationalist Chinese government on Taiwan asks Washington to sell wheat under P.L. 480. Assured that Taiwan will continue to buy wheat from its usual commercial sources and that the P.L. 480 sales won't disrupt normal trade, the U.S. agrees to sell some surplus wheat on a concessional basis.

A formal agreement is drawn up between the two governments. The terms of trade and payment are set. If the wheat is to be sold under Title I, Taiwan agrees to pay in local currency when delivery is made. If it is to be sold under Title IV, the Nationalist government will pay in American

P. L. 480 SALES—HOW U. S. EXPORTERS EARN DOLLARS



dollars over periods of up to 20 years, at low interest rates and with a two-year grace period if necessary.

The USDA issues Taiwan an official purchase authorization which specifies exactly what kind and approximately how much wheat can be bought.

Step 2: The Nationalist government issues a sub-authorization to a local importer, which may be either a government agency or a private businessman. It also designates the banks in Taiwan and the United States which will handle all further financial transactions. The U.S. government issues a letter of commitment to the bank in the States, guaranteeing dollar payment to the American exporter.

Step 3: The merchant in Taiwan may contract with any American exporter he likes. They settle upon the exact price, which is reviewed by USDA to see that it's not above the prevailing range of export prices for wheat. And the importer arranges through his bank for a letter of credit which the American exporter can draw upon in his U.S. bank.

Step 4: The American exporter buys surplus wheat from USDA stockpiles or regular commercial stores. Since U.S. prices for wheat are usually higher than world prices, the Department of Agriculture makes up the difference to the American firm.

The exporter ships the wheat to Taiwan. He gives the ownership documents to his bank and is paid in American dollars.

Step 5: The U.S. government credits the exporter's bank with dollars and the American bank then sends the ownership documents on to the bank in Taiwan.

If the wheat is a Title I sale, the Taiwan bank credits the account of the U.S. embassy with local currency. If the wheat is sold under Title IV, the Nationalist government pays in U.S. dollars over the specified time peri-

ods and at an interest rate agreed upon by both governments.

Step 6: The Taiwan importer buys the ownership documents from his bank, paying local currency. When the wheat arrives in port, he takes title and then he may either sell it on the local market or stockpile it.

End of story. Well, not quite. Taiwan has the wheat it needs. If it was a Title IV sale, the Nationalist Chinese government has the importer's local currency on deposit which it doesn't have to convert into U.S. dollars for a number of years.

The American exporter has realized a profit and expanded his market in Taiwan. The U.S. has disposed of some surplus wheat and the U.S. government will receive dollars or the local currency it needs for spending in Taiwan.

Taiwan is just now at the point of shifting from Title I to Title IV imports, buying more and more surplus American farm products for U.S. dollars. (14)

U.S. Spending in Recipient Countries Determines Benefits of Title I, IV Aid

The U.S. provides aid under Title I or Title IV of P.L. 480 depending in part on whether our balance of payments situation is served best by obtaining local currencies of recipient countries or by allowing deferred dollar payments with a sizeable downpayment.

Title I sales are likely to be better for a recipient country if: (1) official U.S. expenditures in the country are small; (2) expected dollar earnings are meager; and (3) payment in local currencies can be made without causing instability in prices.

Title IV sales are more favorable if official U.S. expenditures in the recipient country are large enough to provide it with a net dollar surplus after deferred dollar repayment for the commodities. (15)

East Pakistan Digs Way to Rice Surplus Armed with Hope, Hand Tools, U.S. Aid

The landless laborers of East Pakistan have helped to create a unique situation in this populous part of the Far East—a surplus of food; in this case, rice.

The rice harvest this year is an all-time record, 20 per cent above last year, and far more than East Pakistan can use. Since the people of West Pakistan are more wheat than rice eaters, the government may have to seek foreign markets for whatever part of the surplus can't be stored for future use in the eastern province.

Good weather had a hand in creating the bumper crop. More important, though, was the first real impact of the Rural Works Program, begun in 1961.

Using mostly hand tools, hundreds of unemployed laborers were put to work reshaping the land—digging drainage channels and small irrigation systems, building dirt roads and embankments.

What also got built in the process was a community of self-confident, cooperative citizens.

Visitors report there's a new spirit of vitality and hope throughout East Pakistan, replacing the lethargy and despair that long shrouded the region's rural population.

Unlike a multimillion dollar hydroelectric dam, however helpful to a nation's future economy, a simple irrigation ditch is something small farmers can understand and appreciate. Small projects providing many jobs are the heart of the Rural Works Program.

The U.S. has a part in this grassroots revival, too. The program is financed with funds generated by selling U.S. surplus food for Pakistani currency. Some 90 per cent of the funds expended goes to pay project workers. (16)

The following publications are issued by the Economic Research Service and cooperatively by the state universities and colleges. Unless otherwise noted, reports listed here and under Sources are published by ERS. Single copies are available free from the Division of Information, OMS, U.S. Department of Agriculture, Washington, D.C. 20250. State publications (descriptions below include name of experiment station or university after title) may be obtained from the issuing agencies of the respective states.

recent publications



FRENCH WEST INDIES: AGRICULTURAL PRODUCTION AND TRADE. Agnes Sanderson, Regional Analysis Division. ERS-For. 80.

The French West Indies, though its chief trading partner is France, is a small but growing market for U.S. commodities. In 1962 imports from the U.S. amounted to \$5 million. (See June 1964 Farm INDEX.)

CHILE: RECENT TRENDS IN AGRICULTURAL PRODUCTION AND TRADE. Gordon Patty, Regional Analysis Division. ERS-For. 84.

Since 1958 Chile's demand for agricultural products has been expanding faster than production. Therefore, the need for farm imports has grown. To meet this need in the face of foreign exchange shortages, U.S. farm exports to Chile have risen, assisted by P.L. 480 concessional sales.

THE AGRICULTURAL ECONOMY OF THE IVORY COAST. Snider W. Skinner, Regional Analysis Division. ERS-For. 69.

Coffee is the Ivory Coast's most valuable agricultural commodity, and also its biggest economic problem. Solving the problem of coffee surpluses is the major concern of the government and its advisors. They are also seeking to diversify agriculture by increasing production of such commodities as rubber and cotton.

ITALIAN AGRICULTURE: PROJECTIONS OF SUPPLY AND DEMAND IN 1964, 1970, AND 1975. Sheldon Tsu, Regional Analysis Division, and Ernest Koenig, Foreign Agricultural Service. ERS-For. 68.

Demand for farm products is expected to expand faster than domestic production during 1965-75. (See April 1964 Farm INDEX.)

NICARAGUA: RECENT SHIFTS IN FARM OUTPUT AND TRADE. Mary S. Coyner, Regional Analysis Division. ERS-For. 77.

Nicaragua's economic situation has brightened considerably in the past three years, due largely to good crops, particularly cotton. Cotton is now the country's leading commercial crop, replacing coffee.

A GUIDE TO LOWER COSTS AND GREATER EFFICIENCY IN CURING CATTLE HIDES. John W. Thompson, Marketing Economics Division. AER-54.

In-plant curing costs may mean the difference between profit and loss for many hide-processing firms. This report presents two model plants to show the appropriate capital investments, operating costs and labor requirements that characterize well managed hide-curing establishments. (See p. 12, this issue.)

OWNERSHIP AND USE OF LAND FOR FORESTRY AND RECREATION IN NORTHERN WISCONSIN. J.A. Munger, Farm Economics Division, and C.W. Loomer, Wisconsin Agricultural Experiment Station. Wis. Agr. Expt. Sta. Res. Bul. 248.

The basic purpose of this study in northern Wisconsin was to determine how the use and management of land was influenced by the personal characteristics of the people who owned it.

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1. C. C. Dennis, B.A. Dominick and B. W. Kelly, The Great Lakes Tart Cherry Industry: Production Costs, ERS-171 (P); 2. M. L. Cotner, M. E. Wirth and G. D. Irwin, Participants in the Land Market—A Profile of Renters, Buyers, and Sellers in Lower Michigan, Mich. Agr. Expt. Sta. (M); 3. Farm Real Estate Market Developments, CD-65 (P); 4. M. L. Upchurch (SM); 5. W. F. Hughes and A. C. Magee, Economics of Low Capacity Irrigation Wells—Texas High Plains, Texas Agr. Expt. Sta. (M); 6. R. A. Christiansen and S. D. Staniforth, The Economic Implications Associated with Proposed Land Use Changes in the Wisconsin "Twin Parks" Watershed, Wis. Agr. Expt. Sta. (M); 7. D. Lea and J. Russel, Preliminary Report on Economic Base Study for Agriculture—Ohio River Basin, ERS (M); 8. J. D. Jansma and W. B. Back, Local Secondary Effects of Watershed Projects: A Case Study of Roger Mills County, Oklahoma, ERS-178 (P); 9. W. W. Jones, Economics of Marketing

Milk in Alaska (M); 10. R. M. Bennett, Interstate Hauling of California-Arizona Fresh Fruits and Vegetables by Rail and Truck, MRR (M); 11. K. Bird (SM); 12. C. C. Cable, Jr., H. R. Smith and Z. M. Looney, Comparison of Mechanically Drawn Samples With Cut Samples for Evaluating Cotton Quality, MRR-654 (P); 13. J. W. Thompson, A Guide to Lower Costs and Greater Efficiency in Curing Cattle Hides, AER-54 (P); 14. J. P. Bogumill and O. H. Goolsby, Financial Procedures Under Public Law 480—Emphasis on Titles I and IV of the Agricultural Trade Development and Assistance Act, FAER-17 (P); 15. W. E. Elrod, Jr., Monetary Effects of Financing Agricultural Exports Through Programs Under Titles I and IV, Public Law 480, FAER-12 (P); 16. C. E. Pike (SM).

Speech (S); published report (P); unpublished manuscript (M); special material (SM).

ECONOMIC FACTORS INFLUENCING EDUCATIONAL ATTAINMENTS AND ASPIRATIONS OF FARM YOUTH. E.J. Moore, E.L. Baum and R.B. Glasgow, Resource Development Economics Division. AER-51.

Differences in educational attainment and aspiration among farm youth may be related to the financial resources available for further schooling. (See May 1964 Farm INDEX.)

OPERATING COSTS IN PACKING MIXED FEEDS. C. J. Vosloh, Jr., Marketing Economics Division. MRR-658.

This report presents two model packing centers which provide information on standards against which to measure costs, labor, equipment and operating practices in the packaging process.

PRODUCTION AND PRODUCTION REQUIREMENTS, COSTS AND EXPECTED RETURNS FOR CROP ENTERPRISES—MEDIUM-TEXTURED (MIXED SOILS)—HIGH PLAINS OF TEXAS. R.E. Patterson, Texas Agricultural Experiment Station, in cooperation with the Farm Production Economics Division and the Cooperative State Experiment Station Service. Texas Agr. Expt. Sta. MP-695.

This report describes profitable crop enterprises and practices on medium-textured soils.

THE FARM INDEX

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